

-2-

must now have a higher volume of in-patient accounts to maintain a census similar to the prior years because the length of stay is shorter. Additionally, the business office has to confront the high volume of out-patient surgeries (many previously done as in-patient), emergency room volume, and out-patient ancillaries.

5

Managed Care Companies, including HMO's, PPO's and silent PPO's all have placed administrative burdens on the business office. They require additional paperwork such as referrals, authorizations, and pre-certifications while paying only a fraction of the total charge. Also, these companies attempt to delay the

10 payment process and require heightened volume of business office activity to effect payment.

The foregoing factors have caused an extreme shift in the business office. The new business office equation includes more accounts, requiring a higher

15 level of analysis with lower per account net reimbursement. Patient Account Representatives have to possess a higher level of knowledge and exceptional analytical abilities. Each account regardless of size requires analysis and action to bring the account to a zero balance. There are several potential negative ramifications if accounts are not properly reconciled which include:

20

- Incorrect contractuals thereby creating additional work (cost) or lost reimbursement (cash),
- Inappropriate billing to patients,
- High volume of unprocessed claims,

25

- Inappropriate workers compensation billing,
- Erroneous billing of Medicaid,
- Erroneous billing of Medicare and the related compliance problems,
- Breach of contract with managed care payors, and
- Most importantly, public relations problems rooted in the patient base.

30

Healthcare staffing levels and procedures need review to ensure that an appropriate level of attention is given to each patient account. In most healthcare

service providers accounts receivable, an inverse relationship of volume versus dollars exists. Often times 80% of the accounts receivable dollars are represented by 20% of the volume. A review of total A/R in descending order will identify this situation. However, this 80% of patient accounts represents significant dollars to the healthcare service provider and significant potential downside in terms of liability if not properly administered.

- To combat these problems, healthcare service providers now rely on commercial computer software systems that perform complete contractual aging of patient accounts. Often, several different software systems are used for different portions of the patient account lifecycle. There is a great deal of emphasis on information entry and retrieval, but little emphasis on information transfer throughout the patient account lifecycle or processing of the information to maximize revenues. Even in comprehensive software systems, complete contractual aging is almost impossible to implement since contractual agreements vary a great deal and must be flexible. Healthcare service providers have contractual agreements with Medicare, Medicaid, and Managed Care companies, among others. These agreements require the healthcare service provider to accept limited payments and absorb or write-off the difference. The difference is called a contractual adjustment. Many existing systems bill the payor for charges either electronically or with a hard-copy bill. After the healthcare service provider receives payment, the business office manually computes, writes-up, and processes a contractual adjustment. The process that accomplishes this task is generally known as "modeling". Modeling profiles each payor's contract and, when a patient is processed under that payor, the appropriate contractual adjustment is computed and applied to the account. Most of the existing modeling systems are inflexible in dealing with the increasing volume of carve-outs or exceptions to the general rule. For example, a Managed Care contract might call for a \$1,000.00 per day per diem. However, if charges exceed \$50,000.00, then the healthcare service provider is paid 65% of charges. Current systems may only calculate the per diem and therefore provide an incorrect contractual since they are not flexible enough to handle the additional constraint. The result is that even healthcare providers with modern computer equipment and integrated accounting and

patient management systems are still unable to realize large portions of their potential revenues.

Various inventors have attempted to computerize portions of the patient account lifecycle. For instance, there are several examples of prior art addressing the verification of patient insurability including U.S. Patent Nos. 4,491,725 to Pritchard (1985) and 5,832,447 to Rieker et al. (1998). These inventions help to reduce errors in the billing process by providing real-time verification of patient health insurance eligibility. They are focused, however, only on this small portion of the patient account lifecycle and only respond with data in an existing database. They do not provide any management process for the patient account lifecycle and are only reactive to a direct query.

A second area of prior art addresses the billing process itself as described in U.S. Patent Nos. 5,930,759 to Moore et al. (1999) and 5,956,690 to Haggerson et al. (1999). The first invention describes a method for processing healthcare electronic data claims and is intended for use by the payor or a healthcare clearinghouse and not the healthcare provider. It is focused solely on processing billing claims and provides no management solution for other portions of the patient account lifecycle. The second invention describes a bundled billing method that sorts through patient accounts and produces a set of aggregated bills to send to a payor. It is intended for use by the healthcare provider, but is focused only on the billing portion of the patient account lifecycle.

The third area of prior art is intended for use by self-insurers as described in U.S. Patent No. 5,235,507 to Sackler et al. (1998). This invention is a system for monitoring a large number of insurance policies for a self-insurer with many employees. The system performs insurance eligibility verification and calculates how much of the claim should be paid to the healthcare provider. Again, it is focused on the billing process only and is used by the insurer not the healthcare provider.

It is clear from this discussion that all inventions known heretofore addressing the patient account lifecycle suffer from a number of disadvantages.

- a) They are focused on only one portion of the patient account lifecycle. As such, they provide neither information about the interaction among the various parts of the patient account lifecycle nor any means for exploiting that information over time.
- b) They are reactive systems in that they present only pre-existing information stored in a database. Since they do not process that information in any proactive way, there is no way of knowing whether the information is complete or accurate.
- c) The systems that provide management reports, alerts, or specialized edits do not feed this information to other parts of the patient account lifecycle in any systematic way so the information is often lost or ignored until the billing phase. At this point, it is often too late to recover the required information and complete the billing. As a result, these bills are often simply ignored and eventually written-off as bad debt and sent to a collection agency.
- d) They do not provide any management of the overall patient account lifecycle process in the form of checklists, alerts, edits, and control reports that can be integrated throughout the patient account lifecycle.
- e) They do not provide any means for monitoring the patient account lifecycle and evaluating the performance of the management system. This makes it very difficult to discover which parts of the patient account lifecycle are being neglected and therefore almost impossible to improve the process and increase revenues.

As a result of these disadvantages, the healthcare industry provides an environment in which extreme differences exist between what is charged for services

rendered and what is ultimately received in cash. Systematic communication of information to support and ensure collection of revenues billed simply does not exist. Clearly, there is a need for a business process that manages the entire patient account lifecycle rather than focusing on portions of the lifecycle.

5

Summary of the Invention

In accordance with a method for management of the patient account lifecycle comprises flashpoints and a centralized management unit, control reports, edits and alerts, and automated checklists and a means for integrating and
10 communicating information over the entire patient account lifecycle as well as a means for computerized implementation comprising a communication network, encryption and authentication devices, a database management software system, and business office services provider workstations.

15

Other objects and advantages of the invention will be apparent from the following description, the accompanying drawings and the appended claims.

Brief Description of the Drawings

Figure 1 is a depiction of the process flow for the present invention
20 showing the key flashpoints within the patient account lifecycle and the centralized management unit.

Figure 2 is a detailed description of the centralized management unit.

25

Figures 3a and 3b depict items associated with the Pre-Registration flashpoint.

30

Figures 4a and 4b depict items associated with the Admission/Registration flashpoint.

Figures 5a, 5b, and 5c depict items associated with the In-House flashpoint.

Figures 6a, 6b, and 6c depict items associated with the Discharge
flashpoint.

Figures 7a and 7b depict items associated with the Suspense
5 flashpoint.

Figure 8 depicts items associated with the Billing flashpoint.

Figures 9a, 9b, 9c, and 9d depict items associated with the
10 Follow-Up/Collections flashpoint.

Figures 10a and 10b depict an example of the Operating Report.

Figures 11a and 11b depict details of the Average Daily Revenue and
15 Gross A/R Days computation in the Operating Report and a Standard for
Comparison.

Figures 12a and 12b depict details of the remaining entries in the
Operating Report and Standards for Comparison.
20

Figure 13 depicts a means for remote management of the patient
account lifecycle using a virtual private network via the Internet that is encrypted for
privacy and employs digital certificates for user authentication.

Figure 14 depicts an alternative means for remote management of the
25 patient account lifecycle using a web-based application via Secure Sockets Layer
(SSL) with encryption for privacy and digital certificates for user authentication.

30

Detailed Description of the Preferred Embodiment

The patient account lifecycle management system of the present

invention is essentially a communication system that efficiently manages information throughout the patient account lifecycle. The management system processes the information to maximize revenues received for services billed by anticipating billing requirements. Although the patient account lifecycle includes many steps, this

- 5 invention comprises seven key flashpoints within the patient account lifecycle that are critical for managing the overall process. A flashpoint is a defined point in time in the patient account lifecycle with a specific purpose that provides an optimum opportunity for management of the patient account. These flashpoints represent times within the patient account lifecycle where management intervention is possible and
- 10 will be most effective. As depicted in Figure 1, the flashpoints are

1. **Pre-registration 10** – A contact point prior to the actual point of service.
2. **Admission/Registration 12** – The point at which a patient
- 15 presents for service.
3. **In-House 14** – The time period from beginning of clinical service through patient's exiting the healthcare facility.
4. **Discharge 16** – The point at which the patient leaves the healthcare facility.
- 20 5. **Suspense 18** – The time period after discharge and before minimum billing point.
6. **Billing 20** – Point at which an electronic or hardcopy bill is sent to payor for adjudication.
7. **Follow-Up/Collection 22** – Post billing period of activity
- 25 affecting the accounts.

The flashpoints are grouped into two phases, a Patient Contact Phase 24 and a Billing Phase 26. All of the flashpoints communicate with a centralized management unit 28. The centralized management unit 28 is depicted in Figure 2 and

30 is where the business office services manager integrates information 34 from all portions of the patient account lifecycle and ensures that required information is collected at each flashpoint 30. The centralized management unit 28 anticipates

billing requirements beyond those hard-coded into the contractual aging software and generates control reports **32**, alerts, edits, and checklists **40** to ensure maximum revenues received for services billed. Control reports are management reports that are created by querying the patient account software system at some flashpoint. The

- 5 control reports consist of information that can be compared with anticipated billing requirements. Edits are informational items entered into the patient account software system that are necessary for billing. Alerts are notices sent to the person entering the data into the patient account system to ensure that required information is collected from the patient. Checklists are a combination of edits and alerts that comprise all of
- 10 the required information that must be entered during a given flashpoint to ensure maximum revenue for the service billed. To process the information, the manager may have to contact the healthcare provider **38** or the patient/payor **36** to obtain required information to complete the edits and ensure successful billing. The centralized management unit **28** also provides a means for continuous improvement
- 15 of the patient account lifecycle process through operating reports **42**. These reports provide direct insight into the patient account lifecycle and allow the business office services provider to monitor, direct, and train the healthcare service provider's staff and ensure that problem areas are corrected quickly and bad debt write-offs are avoided.

20

A means for remotely managing patient accounts using this system is depicted in Figure 13. This is an off-site approach using a virtual private network (VPN) to access the existing healthcare provider's software and remotely manage any portion of the patient account lifecycle. At the healthcare provider's location, the

- 25 VPN comprises a patient account system **138** and an encryption and authentication device **140**. At the centralized management unit location, the VPN comprises an encryption and authentication device **144**, a database management software system **150**, and computer workstations **148** equipped with terminal emulation software for communicating with the patient account system at the healthcare provider location.
- 30 The Internet **142** is used as the communication medium. It is assumed that the healthcare provider location and the centralized management unit location have a local area network and the necessary equipment (e.g. routers and firewalls) for

accessing the Internet.

An alternative embodiment is depicted in Figure 14. This is another off-site approach but provides for complete outsourcing of the entire patient accounts receivable or any portion thereof. In this embodiment, the healthcare provider uses workstation 139 to access a web-based application at the centralized management unit via the Internet 142. In this embodiment, the encryption and authentication devices 140, 144 comprise a Secure Sockets Layer (SSL) transaction with the application server 154 at the centralized management unit location. At the centralized management unit location, the encryption and authentication device 144 can further comprise an SSL accelerator and a means for authenticating users with digital certificates. The application server 154 at the centralized management unit 28 location implements the present invention in a database management system 150 (such as Oracle) and provides the application interface via a web-based application 154 (such as Java server pages). This embodiment is completely automated and independent of the healthcare provider's existing software. In fact, the healthcare provider need not use any patient account management software and can rely solely on the centralized management unit's web-based management software 154. Another web-based application and user interface is presented to the patient account lifecycle manager 34. This interface allows the service provider to work the patient accounts using the database management system 150 located at the centralized management unit 28 location.

From the description above, a number of advantages of the invention become clear:

- a) The flashpoints provide a means for managing the entire patient account lifecycle using control reports and alerts to provide information about the interaction among the various parts of the patient account lifecycle. The availability of the information and the production of automated checklists allow the information to be exploited throughout the patient account lifecycle and not during only a single part;

- b) The management control reports, alerts, and automated checklists provide a means for proactive management of the patient account and ensure that required information is complete and accurate;
- 5 c) The availability of the management control reports, alerts, and automated checklists throughout the patient account lifecycle allows them to be used at any time from any flashpoint;
- d) The management control reports and operating reports allow
10 for continuous improvement of the patient account lifecycle process. Improving the process at key flashpoints designated in the reports ensures that revenues will be maximized by improving cash flow, reducing bad debt, reducing costs, and reducing healthcare days in receivable;
- 15 e) The invention provides a means to manage the existing patient accounts system and can be used to manage any portion of the patient account lifecycle. This flexibility is very convenient for the healthcare provider and obviates the need to invest in new computer hardware or software;
- 20 f) The invention provides for patient privacy and for the security of the healthcare provider's data and network by using an encrypted VPN tunnel over the public Internet and digital certificates for user authentication. Remote access to the healthcare provider's existing network obviates the need to maintain duplicate sets of patient accounts and allows for centralized and coordinated management of
25 multiple healthcare provider locations.

Further advantages are:

- g) the system provided by the present invention is extremely
30 flexible in its implementation so that healthcare service providers can request management of the process at any point in the patient account life cycle;

-12-

h) the system provided by the present invention is independent of the existing software used by the healthcare provider for receivables of patient accounts. Therefore it does not require the healthcare provider to make any costly software changes or upgrades;

5

i) the system provided by the present invention defines a set of key flashpoints to focus the patient count lifecycle management process;

j) the system provided by the present invention includes
10 automated management triggers to ensure efficient control over the patient account lifecycle;

k) the system provided by the current invention includes key control reports that direct management intervention in the patient account lifecycle;

15

l) the system provided by the present invention generates periodic operating reports to enable management to track the patient account lifecycle and audit the improvements in cash flow, bad debt reduction, reduced costs, and reduced healthcare days in receivable;

20

m) the system provided by the present invention generates a management report with variances to original payor denials;

n) the system provided by the present invention eliminates the
25 need for additional terminals dedicated to the business office service provider;

o) the system provided by the present invention saves personnel resources, time, and money for the healthcare provider;

p) the system provided by the present invention maintains patient
30 privacy;

q) the system provided by the present invention is secure and protects the healthcare provider's network and data;

- r) the system provided by the present invention can be implemented in various ways including on-site or remotely using the existing healthcare provider's software.

Operation

- 10 A typical healthcare provider has an existing patient account software system 138 (Fig. 13). Data entry staff members employed by the healthcare provider access the patient account software system 138 through computer workstations 139. The healthcare provider staff members collect billing and healthcare services information from the patient during the patient contact phase 24 (Fig. 1) and prepare
- 15 billing claims during the billing phase 26. Communication between the manager 34 and the healthcare provider's data entry staff members who are responsible for the flashpoints 30 is typically done through the patient account software (either the existing patient account software using a Notes section or the web-based application provided by the centralized management unit, depending on the embodiment),
- 20 however, it can also be accomplished with written memos or oral communication. Often, a different data entry staff member is responsible for each flashpoint in the patient account lifecycle. This emphasizes the need for centralized management since important information is likely to be lost as more people handle it.

- 25 The manager 34 in the centralized management unit 28 aggressively monitors and acts upon the information available from the flashpoints producing the most efficient patient account management resulting in maximum revenues for services billed. At any time in the patient account lifecycle, the patient account manager 34 in the centralized management unit 28 integrates information throughout
- 30 the account lifecycle by generating control reports 32. Any required information that is missing is gathered from the patient/payor 36 or the healthcare provider 38. As an example, payors often require patients to sign a form acknowledging that the patient

- has no other insurance carrier. If this form is not present with the claim, the payors will reject it. The manager must contact the patient and arrange to have the form signed by the patient. Note that the manager function **34** is not accounted for in the typical healthcare provider system since the data entry staff have neither the time nor
- 5 the training to follow-up in this manner. Existing contractual aging software systems **138** cannot possibly account for every payor's requirements. Another example is when medical records must be sent with the bill. If the physician has forgotten to sign the chart, the claim will be rejected. Again, the manager **34** must contact the healthcare provider to obtain the physician's signature prior to the billing phase **26** of
- 10 the patient account lifecycle. Note further that in the patient contact phase **24**, if the required information can be obtained from the patient, the centralized manager **34** will send a checklist alert **40** to the data entry staff member to obtain the information from the patient and complete the edit. During the billing phase **26**, however, the centralized manager can obtain the missing information from the patient/payor **36** or
- 15 healthcare provider **38**, as described above, and complete the edit without having to send a checklist alert.

- The centralized management unit **28** may have oversight only for a portion of the patient account lifecycle, such as the billing phase **26**. In this case, the
- 20 healthcare provider transfers a portion of the patient accounts **138** to the centralized management unit **28**. Writing the patient accounts to an Excel spreadsheet and transferring the resulting file to the centralized management unit's database management system **150** via the Internet **142** can accomplish this. The manager **34** implements the centralized management unit **28** function using only the flashpoints
- 25 **30** from the billing phase **26**. The manager can then access the healthcare provider's patient account system **138** via the Internet VPN **140**, **142**, **144**, update the accounts, and communicate with the healthcare staff members. In this way, the healthcare provider's patient account system can be updated without having to maintain dual accounting systems at both sites. The healthcare provider can then access the control
- 30 reports, alerts, edits, and checklists, and operating reports via the Internet VPN **140**, **142**, **144** through the centralized management unit's database management system **150** either directly or using a web-based application **154** from the healthcare

provider workstation **139**.

Figures 3 through 9 depict some of the key information that is available or required at each flashpoint. Note that although the flashpoints **30** in the patient contact phase **24** and the billing phase **26** are described sequentially, the centralized manager **34** has access to all flashpoints simultaneously. Each day the centralized manager **34** reviews every flashpoint and schedules activity for the next day after prioritizing as described further below.

In Figure 3a, a list of activities **44** that are part of the checklist for the Pre-Registration flashpoint **10**, as well as the information required **46** for the flashpoint, are summarized. The Pre-Registration flashpoint **10** is the first contact with the patient. Manager Integration **34** monitors the flashpoint and extracts information needed for the Incomplete Pre-Registration Report of Figure 3b. The Outstanding Item **48** column is the most important result of this report. Outstanding items are information required by payors before a claim will be paid that is missing from the edits. Often, the patient account software will not alert the data entry staff member for certain edits since the software cannot know all possible requirements for all payors. This is where the centralized manager **34** must review the requirements for each payor and compare them with the billing edits collected at the flashpoint **10** and passed to the centralized management unit **28**, as generally depicted by the flashpoints **30** at the top of Figure 2. The Incomplete Pre-Registration Report is used to prepare the checklist **40** with required edits and alerts for subsequent flashpoints. This information is available to the healthcare data entry staff member through the patient account software system **138** at any flashpoint **30** and is viewed through the healthcare provider workstation **139**. This initial screening in the first flashpoint will significantly reduce or eliminate errors and delays at subsequent flashpoints. A common task is to verify insurance coverage and level of benefits for the particular service requested by the patient.

The second flashpoint occurs at the Registration/Admission **12**. In Figure 4a, a list of activities **50** that are part of the checklist for the Registration/Admission

flashpoint 12 as well as the information required 52 for the flashpoint are summarized. Once again an automated checklist 40 of all required information is generated to manage this flashpoint proactively. Additionally, any payor specific edits 40 added by the centralized manager 34 to ensure that the payor requirements

5 are satisfied. This is a key flashpoint since payor delays are reduced or eliminated at this stage by completing these payor specific edits. Once again, the centralized manager 34 generates a control report 32 from the flashpoint information 30. The Incomplete Registration Control Report is summarized in Figure 4b. Again the Outstanding Items column 54 is the key management data to be forwarded to

10 subsequent flashpoints. If any payor specific edits were not identified previously, the centralized manager 34 would add them to the checklist 40 here. If necessary, the centralized manager contacts the healthcare provider 38 or the patient/payor 36 to obtain any missing information. This may be the last time to contact the patient directly depending on the type of service. The checklist 40 is passed on to the

15 flashpoints 30 through the patient account software system 138 or 154 and viewed by the data entry personnel through the healthcare provider workstation 139.

The In-House flashpoint 14 focuses on the patient time in the healthcare facility and is detailed in Figure 5a. The centralized manager 34 iteratively

20 reviews the control reports 32 at this stage since the management actions required change with time. The key activities 56 are to review benefit depletion and generate alerts when re-certification or re-authorization are required. The information required by the healthcare data entry staff during this flashpoint 58 includes these alerts as well as alerts for missing information from previous flashpoints. As payors

25 often provide different benefits, a key control report is the Benefit Depletion Report shown in Figure 5b. The columns labeled Maximum Benefit \$ 60 and Maximum Days 62 are the key benefit measures that are limited by the payors. Automatic alerts for re-certification and authorization to extend the benefits are summarized in the Certifications/Authorizations Expiring Report of Figure 5c. The expiration date 64 is

30 used to sort and prioritize the alerts. These control reports are generated in advance of the benefit depletion dates 64 to trigger proactive management intervention in the patient account lifecycle and ensure that healthcare services will be covered by the

payors. Data from these reports are gathered by the centralized manager **34** into a checklist of edits and alerts **40** and merged with the alerts for missing data from the previous flashpoints. Each day the data entry staff member monitors accounts looking for benefit depletion alerts. If an alert is encountered, the staff member

5 contacts the payor for re-certification and authorization to extend benefits. It is also possible that the centralized manager would contact the payor **36** or the healthcare provider **38** for this information.

The Discharge flashpoint **16** occurs at patient discharge and is critical

10 because it is the last chance to work with the patient in person to ensure that the patient account is up-to-date and ready for adjudication. This is the last flashpoint in the patient contact phase **24** and the patient is released from the healthcare facility following this flashpoint. Figure 6a summarizes the Discharge flashpoint **16** activities **66** and required information **68**. The most recent checklist **40** highlights all

15 outstanding items and ensures that all remaining billing edits will be properly applied. The Urgent Information Outstanding Report is shown in Figure 6b and includes the Days to Bill **70** and Information Needed **72**. The Days to Bill **70** are used to prioritize the alerts for the checklist **40** and are either determined by the payor or set by a standard. For example, the centralized management unit **28** includes a set

20 of standards as part of the performance measures (described below) for days to bill, i.e., the desired number of days between when the patient is discharged and when the claim should be filed with the payor. Accounts with shorter Days to Bill **70** should receive higher priority since meeting the standard will improve the performance measure for the centralized management unit **28**. The Discharge Billing Edits Report

25 is shown in Figure 6c and includes additional Information Needed **74**. The centralized manager **34** generates these control reports from the flashpoint data **30**. Note that the discharge date is tied to the required billing date in these control reports. The law specifies a maximum number of days between discharge and filing a claim with a payor. After the maximum number of days, the payor is not required to

30 pay the claim. This is critical information that must be collected and prioritized into a checklist **40** and sent to the subsequent flashpoints, in particular, the Suspense flashpoint **18**. The data entry staff member views the alerts as notes in the patient

account software **138, 154**. This marks the end of the Patient Contact Phase **24**.

The Billing Phase **26** begins with the Suspense flashpoint **18**. The suspense period occurs between the time the patient is discharged and the minimum
5 billing point. Figure 7a summarizes the activities **76** and required information **78** for the Suspense flashpoint **18**. During this time, all remaining billing edits are worked based upon the checklist **40** generated by the central management unit **28**. The centralized manager **34** prepares the checklist by reviewing the control reports **32** generated by the data from the previous flashpoints **30**. The Urgent Information
10 Outstanding Report from Figure 6b and the Suspense Report in Figure 7b contain the critical information required by the centralized manager to sort, prioritize, and work the accounts. The Days to Bill **70** and Information Needed **72** are used to prioritize the accounts and form the alerts for the checklist. The Days Beyond Billing Date **80** and Information Needed/Edit **82** are used to track and control accounts that do not
15 meet the minimal/optimal time to bill criteria. These accounts are in danger of being rejected by the payor for non-compliance with the law and receive highest priority. The checklist **40** is available to the flashpoints **30** through the patient account software **138, 154**. It is highly likely that the centralized manager will have to contact the healthcare provider **38** or the patient/payor **36** during the billing phase **26** since
20 the patient is no longer in the healthcare facility and the account may be several weeks old.

The Billing flashpoint **20** activities and required information are summarized in Figure 8. Patient accounts are separated depending on whether they
25 can be billed electronically by the healthcare provider's data entry staff members. Electronic billing is more accurate and ensures that the payor receives the billing information since an electronic acknowledgment is required. Accounts are updated as they are billed. The centralized manager **34** generates the checklist for this flashpoint using the Suspense Report of Figure 7b. Again, the Days Beyond Billing Date **80** and
30 the Information Needed/Edit **82** are used to prioritize the accounts and to generate the alerts **40**. This flashpoint is the last chance for management intervention to prepare a patient account for billing with the appropriate payor edits to ensure prompt

and accurate adjudication of the account. The checklist **40** is available to the flashpoints **30** through the patient account software **138, 154**. It is highly likely that the centralized manager will have to contact the healthcare provider **38** or the patient/payor **36** during this flashpoint since the patient is no longer in the healthcare facility and the account may be several weeks old.

The Follow-Up/Collection flashpoint **22** is the seventh and final flashpoint. The activities **90** and required information **92** for this flashpoint are summarized in Figure 9a. The centralized manager **34** uses the flashpoint data **30** to generate a Follow-Up Report as in Figure 9b, a Contractual Exception Report as in Figure 9c, and a Follow-Ups by Representative Report as in Figure 9d. The healthcare facility rarely has personnel involved in follow-up or are understaffed so the focus of this flashpoint for the centralized manager **34** is the Follow-Up by Representative Report. The Days Out column **98** is used to prioritize the follow-up work. The Follow-Up Date **94** from the Follow-Up Report (Fig. 9b) is transferred to the Follow-Up Date **102** in the Follow-Up by Representative Report (Fig. 9d). Accounts are assigned by the centralized manager **34** to account representatives from the centralized management unit **28**. This flashpoint can continue indefinitely since the payor must constantly be monitored and interrogated to ensure that patient accounts are adjudicated in a timely and accurate fashion.

The centralized manager **34** provides business office services remotely through the centralized management unit **28**. The centralized manager **34** establishes a VPN tunnel **140, 142, 144** with the healthcare provider over the public Internet and accesses the healthcare provider's existing patient account software as depicted in Figure 13. The VPN tunnel is established using encryption and authentication devices **140, 144** that automatically negotiate the connection, exchange encryption keys, and establish the tunnel whenever a centralized manager **34** attempts to connect to the healthcare service provider's patient account system **138** using the terminal emulation software **148**. The encryption and authentication devices **140, 144** also negotiate digital certificates for authentication to ensure that only those users with appropriate authorization who can prove their identity through

a third-party (such as Verisign) are allowed access to the healthcare provider's existing network and data **138**. Encryption over the VPN tunnel and authentication using digital certificates is key to this embodiment to ensure patient privacy and to protect the healthcare provider's network and data **138**. Authentication also occurs

5 automatically. Once the VPN tunnel is established, the centralized manager **34** is presented with a login prompt through the terminal emulation software **148**.

Similarly, the healthcare provider can use the web-based approach in Figure 14. Data entry operators at the healthcare provider workstations **139** access

10 the patient account application server **154** via a web browser. Patient account data are entered into the database management system **150**. In this approach, the encryption and authentication is provided by a secure sockets layer transaction. When first accessing the application server **154**, the data entry operator at the healthcare provider workstation **139** is presented with a digital certificate for the centralized

15 management unit **28** (Fig. 1). If accepted, the secure sockets layer transaction establishes an encrypted session between the healthcare providers web browser and the application server **154**. The centralized manager **34** (Fig. 2) at the service provider workstation **148** also accesses the application server **154** and can perform the management function as described above. The healthcare provider also has access

20 to all of the control reports and operating reports via the web browser.

Periodic operating reports such as the example shown in Figures 10a and 10b are used to quantify the performance of the patient account management system and to provide feedback whereby the system can be continuously improved

25 and ensure maximum revenues, improved cash flow, bad debt reduction, reduced costs, and reduced healthcare days in receivable. The report is divided into several sections. The first section is the Gross A/R Days and Gross A/R Days Excluding Self-Payers **104**. These days are used later as normalization factors. Next are the In-Patient and Out-Patient A/R Days **106**. These are broken down by Financial Class

30 (Medicare, Medicaid, Blue Cross, etc.). The In-Patient and Out-Patient A/R Balance as well as Commercial Insurers A/R Balances **108** are also broken down by financial class. Finally, In-Patient and Out-Patient Revenue **110** and In-Patient and

Out–Patient Average Daily Revenue **112** are broken down by financial class.

Average Daily Revenue Computation **128** and Gross A/R Days Computation **130** are summarized in Figure 11a. These are the primary performance measures for the centralized management unit **28**. Average Daily Revenue **112** should increase over time and Gross A/R Days **104**, **106** should decrease over time in a successful patient account lifecycle management system. A standard days for comparison **132** is summarized in Figure 11b. These standards are used to determine the financial classes or types of service that are causing problems. The centralized manager **34** uses this information to determine where management intervention in the patient account lifecycle is required. These reports provide direct insight into the patient account lifecycle and allow the centralized manager **34** to monitor, direct, and train the healthcare service provider's staff and ensure that problem areas are corrected quickly and avoid bad debt write–offs.

The operating report also measures the cash variance from the goal **114**. Information about unbilled accounts is also collected **116**. Both of these measures should decrease over time as the patient account lifecycle becomes more efficient and maximum revenues are collected for services billed. The centralized manager **34** notes problems with unbilled accounts **116** and reviews the Follow–Up Reports in Figure 9 to determine whether an account representative is having difficulty.

Bad–Debt Write–Offs and Recoveries **118** are computed in the operating report and used by the centralized manager **34** to discover problem financial classes. These can often be traced to a particular healthcare staff member or account representative in the centralized management unit **28** in need of training. It is important to reduce the amount of Bad–Debt Write–Offs as well as Recoveries. These are sent to collection agencies for recovery and are not always successful. Additionally, because the collection agency fees are very high, the healthcare services provider will only recover a limited portion of the total bill.

The Average Daily Revenue by Service **126** is computed using the Credit Balance **120**, Revenue by Service **122**, and Days in Month **124**. This is a summary computation that reflects In-Patient versus Out-Patient average daily revenue. These should increase over time as the centralized management unit improves the patient account lifecycle process. Figures 12a and 12b define these performance measures, provide a source for the information, and most importantly, provide a standard for comparison **134**, **136**. The centralized manager **34** periodically reviews all of the information in the operating report, determines problem areas by financial class or service, and takes action to correct the patient account lifecycle process.

10

Accordingly, the reader will see that the system and apparatus of this invention can be used to manage the entire patient account lifecycle either on-site or remotely using the healthcare provider's existing patient account system.

Furthermore, the patient account lifecycle management system has the additional

15 advantages in that:

a) it permits the services provider the ability to remotely manage patient accounts using the existing healthcare provider's patient account system and without maintaining duplicate patient account systems;

20

b) it provides a cost-effective means for healthcare providers to out-source any portion of the patient accounts by allowing the services provider to use the Internet rather than the telephone network;

25

c) it provides for the privacy of the patient using an encrypted VPN tunnel;

d) it provides for the security of the healthcare provider's data and network using encryption and digital certificates for user authentication;

30

e) it provides a comprehensive set of management control reports and operating reports so that the patient account lifecycle process can be

continuously improved and so that revenues will be maximized by improving cash flow, reducing bad debt, reducing costs, and reducing healthcare days in receivable.

Although the description above contains many specifications, these
5 should not be construed as limiting the scope of the invention but as merely providing illustrations of some of the presently preferred embodiments of this invention. For example, the system can provide security using a secure shell approach or other VPN implementation; the system can use a dial -up connection rather than the public Internet; etc.

10

While the form of apparatus herein described constitutes a preferred embodiment of this invention, it is to be understood that the invention is not limited to this precise form of apparatus, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

15

What is claimed is: